

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

Date of mailing (day/month/year) 05 November 2001 (05.11.01)	From the INTERNATIONAL BUREAU
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Applicant's or agent's file reference F-755 WO	IMPORTANT NOTIFICATION
International application No. PCT/EP00/05397	International filing date (day/month/year) 08 June 2000 (08.06.00)

1. The following indications appeared on record concerning:				
<input checked="" type="checkbox"/> the applicant <input type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative				
Name and Address FINA RESEARCH S.A. Zone Industrielle C B-7181 Seneffe (Feluy) Belgium	State of Nationality		State of Residence	
	BE		BE	
	Telephone No.			
	Facsimile No.			
Teleprinter No.				

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:				
<input type="checkbox"/> the person <input checked="" type="checkbox"/> the name <input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence				
Name and Address ATOFINA RESEARCH Zone Industrielle C B-7181 Seneffe (Feluy) Belgium	State of Nationality		State of Residence	
	BE		BE	
	Telephone No.			
	Facsimile No.			
Teleprinter No.				

3. Further observations, if necessary:				
<p> </p> <p> </p>				

4. A copy of this notification has been sent to:				
<input checked="" type="checkbox"/> the receiving Office <input type="checkbox"/> the International Searching Authority <input checked="" type="checkbox"/> the International Preliminary Examining Authority			<input type="checkbox"/> the designated Offices concerned <input checked="" type="checkbox"/> the elected Offices concerned <input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer R. Chrem
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION
(PCT Rule 61.2)Date of mailing (day/month/year)
19 February 2001 (19.02.01)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

International application No.
PCT/EP00/05397Applicant's or agent's file reference
F-755 WOInternational filing date (day/month/year)
08 June 2000 (08.06.00)Priority date (day/month/year)
10 June 1999 (10.06.99)

Applicant

DUPIRE, Marc et al

1. The designated Office is hereby notified of its election made:

 in the demand filed with the International Preliminary Examining Authority on:

15 December 2000 (15.12.00)

 in a notice effecting later election filed with the International Bureau on:2. The election was was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Zakaria EL KHODARY

Telephone No.: (41-22) 338.83.38

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 December 2000 (21.12.2000)

PCT

(10) International Publication Number
WO 00/77090 A2

(51) International Patent Classification⁷: C08L 23/10

(21) International Application Number: PCT/EP00/05397

(22) International Filing Date: 8 June 2000 (08.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
99111318.4 10 June 1999 (10.06.1999) EP

(71) Applicant (for all designated States except US): FINA RESEARCH S.A. [BE/BE]; Zone Industrielle C, B-7181 Seneffe (Feluy) (BE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DUPIRE, Marc [BE/BE]; Rue Mauric Flament (H.), 4, B-7022 Mons (BE). MICHEL, Jacques [BE/BE]; Chaussée de Marche, 2/C, B-7181 Seneffe (BE).

(74) Agent: FINA RESEARCH S.A.; Patent Dept., Zone Industrielle C, B-7181 Seneffe (Feluy) (BE).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— Without international search report and to be republished upon receipt of that report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 00/77090 A2

(54) Title: POLYPROPYLENE WITH HIGH MELT STRENGTH AND DRAWABILITY

(57) Abstract: Use of a multimodal polypropylene blend in melt processing wherein for enhancing a compromise between melt strength and drawability the blend has a dispersion index of at least 8 and a ratio Mz/Mn of at least 10.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 December 2000 (21.12.2000)

PCT

(10) International Publication Number
WO 00/77090 A3

(51) International Patent Classification⁷: C08L 23/10

(21) International Application Number: PCT/EP00/05397

(22) International Filing Date: 8 June 2000 (08.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
99111318.4 10 June 1999 (10.06.1999) EP

(71) Applicant (for all designated States except US): FINA RESEARCH S.A. [BE/BE]; Zone Industrielle C, B-7181 Seneffe (Feluy) (BE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DUPIRE, Marc [BE/BE]; Rue Mauric Flament (H.), 4, B-7022 Mons (BE). MICHEL, Jacques [BE/BE]; Chaussée de Marche, 2/C, B-7181 Seneffe (BE).

(74) Agent: FINA RESEARCH S.A.; Patent Dept., Zone Industrielle C, B-7181 Seneffe (Feluy) (BE).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

(88) Date of publication of the international search report: 8 February 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 00/77090 A3

(54) Title: POLYPROPYLENE WITH HIGH MELT STRENGTH AND DRAWABILITY

(57) Abstract: Use of a multimodal polypropylene blend in melt processing wherein for enhancing a compromise between melt strength and drawability the blend has a dispersion index of at least 8 and a ratio Mz/Mn of at least 10.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference F-755 W0	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 00/ 05397	International filing date (day/month/year) 08/06/2000	(Earliest) Priority Date (day/month/year) 10/06/1999
Applicant FINA RESEARCH S.A.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. **Certain claims were found unsearchable** (See Box I).

3. **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/05397

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C08L23/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C08L C08J C08F C08K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category [°]	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	EP 0 942 013 A (GRAND POLYMER) 15 September 1999 (1999-09-15)	1-3, 7-14, 18-25, 29-33
Y	examples X-9 & WO 99 07752 A (GRAND POLYMER) 18 February 1999 (1999-02-18)	4-6, 15-17, 26-28
Y	US 5 549 867 A (GESSNER SCOTT L ET AL) 27 August 1996 (1996-08-27) column 1, line 16 -column 2, line 31; examples 16-20 ---	4-6, 15-17, 26-28
		-/-

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

8 September 2000

Date of mailing of the international search report

22/09/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Schmidt, H

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/05397

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 494 965 A (HARLIN ALI ET AL) 27 February 1996 (1996-02-27) column 3, line 447 -column 4, line 16 ---	4-6, 15-17, 26-28
A	US 5 578 682 A (WHITE DONALD A) 26 November 1996 (1996-11-26) column 2, line 19 -column 4, line 52; example 26 ---	1-33
A	EP 0 310 734 A (FINA TECHNOLOGY) 12 April 1989 (1989-04-12) examples 1-3 -----	1-33

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/05397

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 942013	A	15-09-1999	WO	9907752 A	18-02-1999
US 5549867	A	27-08-1996	GB	2299292 A	02-10-1996
			US	5612123 A	18-03-1997
US 5494965	A	27-02-1996	FI	931343 A	27-09-1994
			AT	173484 T	15-12-1998
			CA	2136742 A	13-10-1994
			CN	1106613 A	09-08-1995
			DE	69414667 D	24-12-1998
			DE	69414667 T	08-04-1999
			EP	0642549 A	15-03-1995
			ES	2123126 T	01-01-1999
			WO	9422948 A	13-10-1994
			NO	944525 A	25-11-1994
US 5578682	A	26-11-1996	BR	9609044 A	11-05-1999
			CA	2220000 A	28-11-1996
			CZ	9703718 A	12-08-1998
			DE	69609329 D	17-08-2000
			EP	0828761 A	18-03-1998
			HU	9802774 A	29-03-1999
			JP	11505273 T	18-05-1999
			PL	323499 A	30-03-1998
			WO	9637521 A	28-11-1996
EP 0310734	A	12-04-1989	AT	114323 T	15-12-1994
			CA	1323621 A	26-10-1993
			CN	1032343 A, B	12-04-1989
			DE	3750776 D	05-01-1995
			DE	3750776 T	27-04-1995
			ES	2064322 T	01-02-1995
			JP	1074202 A	20-03-1989
			JP	2669833 B	29-10-1997
			KR	9508152 B	25-07-1995
			US	4975403 A	04-12-1990

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

10/009625

File 488 due 8/6/00

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum)

F-755 WO

Box No. I TITLE OF INVENTION

Polypropylene with high melt strength and drawability

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

FINA RESEARCH S.A.
ZONE INDUSTRIELLE C
B-7181 SENEFFE (FELUY)
BELGIUM

This person is also inventor

Telephone No.

32 64 51.41.11

Facsimile No.

32 64 51.46.57

Teleprinter No.

State (i.e. country) of nationality:

BE

State (i.e. country) of residence:

BE

This person is applicant all designated all designated States except the United States of America the United States of America only the States indicated in the Supplemental Box for the purposes of: States

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

DUPIRE, Marc
Rue Maurice Flament (H.), 4
7022 MONS
Belgium

This person is:

applicant only

applicant and inventor

inventor only (If this check-box is marked, do not fill in below.)

State (i.e. country) of nationality: BE

State (i.e. country) of residence: BE

This person is applicant all designated all designated States except the United States of America the United States of America only the States indicated in the Supplemental Box for the purposes of: States

Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf
representative
of the applicant(s) before the competent International Authorities as:

agent

common

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

Telephone No.

32 64 51.41.11

Facsimile No.

32 64 51.46.57

Teleprinter No.

Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVENTORS

If none of the following sub-boxes is used, this sheet is not to be included in the request.

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)		This person is:		
MICHEL, Jacques Chaussée de Marche, 2/C B-7181 Senneffe Belgium		<input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)		
State (i.e. country) of nationality: BE		State (i.e. country) of residence: BE		
This person is applicant for the purposes of <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America		<input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)		This person is:		
		<input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)		
State (i.e. country) of nationality:		State (i.e. country) of residence:		
This person is applicant for the purposes of <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America		<input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)		This person is:		
		<input type="checkbox"/> applicant only <input type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)		
State (i.e. country) of nationality:		State (i.e. country) of residence:		
This person is applicant for the purposes of <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America		<input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)		This person is:		
		<input type="checkbox"/> applicant only <input type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)		
State (i.e. country) of nationality:		State (i.e. country) of residence:		
This person is applicant for the purposes of <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America		<input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box		
<input type="checkbox"/> Further applicants and/or (further) inventors are indicated on another continuation sheet.				

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

Regional Patent

AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SI Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT

EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT

EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT

OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

AE United Arab Emirates

AL Albania

AM Armenia

AT Austria

AU Australia

AZ Azerbaijan

BA Bosnia and Herzegovina

BB Barbados

BG Bulgaria

BR Brazil

BY Belarus

CA Canada

CH and LI Switzerland and Liechtenstein

CN China

CR Costa Rica

CU Cuba

CZ Czech Republic

DE Germany

DK Denmark

DM Dominica

EE Estonia

ES Spain

FI Finland

GB United Kingdom

GD Grenada

GE Georgia

GH Ghana

GM Gambia

HR Croatia

HU Hungary

ID Indonesia

IL Israel

IN India

IS Iceland

JP Japan

KE Kenya

KG Kyrgyzstan

KP Democratic People's Republic of Korea

KR Republic of Korea

KZ Kazakhstan

LC Saint Lucia

LK Sri Lanka

LR Liberia

LS Lesotho

LT Lithuania

LU Luxembourg

LV Latvia

MA Morocco

MD Republic of Moldova

MG Madagascar

MK The former Yugoslav Republic of Macedonia

MN Mongolia

MW Malawi

MX Mexico

NO Norway

NZ New Zealand

PL Poland

PT Portugal

RO Romania

RU Russian Federation

SD Sudan

SE Sweden

SG Singapore

SI Slovenia

SK Slovakia

SL Sierra Leone

TJ Tajikistan

TM Turkmenistan

TR Turkey

TT Trinidad and Tobago

TZ United Republic of Tanzania

UA Ukraine

UG Uganda

US United States of America

UZ Uzbekistan

VN Viet Nam

YU Yugoslavia

ZA South Africa

ZW Zimbabwe

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

and any other States which were available at filing

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

Box No. VI PRIORITY CLAIM

Further priority claims are indicated in the Supplemental Box

The priority of the following earlier application(s) is hereby claimed:

Country (in which, or for which, the application was filed)	Filing Date (day/month/year)	Application No.	Office of filing (only for regional or international application)
item (1) EP	10.06.1999	99 111 318.4	EP
item (2)			
item (3)			

Mark the following check-box if the certified copy of the earlier application is to be issued by the Office which for the purposes of the present international application is the receiving Office (a fee may be required):

 The receiving Office is hereby requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s): 1

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (If two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used): ISA /

Earlier search Fill in where a search (international, international-type or other) by the International Searching Authority has already been carried out or requested and the Authority is now requested to base the international search to the extent possible, on the results of that earlier search. Identify such search or request either by reference to the relevant application (or the translation thereof) or by reference to the search request

Country (or regional Office): EP

Date (day/month/year): 24.02.2000

Number: 99 111 318.4

Box No. VIII CHECK LIST

This international application contains the following number of sheets:

1. request :	4	sheets
2. description :	14	sheets
3. claims :	4	sheets
4. abstract :	1	sheets
5. drawings :	3	sheets
Total :	26	sheets

This international application is accompanied by the item(s) marked below:

1. <input checked="" type="checkbox"/> separate signed power of attorney	5. <input checked="" type="checkbox"/> fee calculation sheet
2. <input checked="" type="checkbox"/> copy of general JCD/FL/MCR power of attorney	6. <input type="checkbox"/> separate indications concerning deposited microorganisms
3. <input type="checkbox"/> statement explaining lack of signature	7. <input type="checkbox"/> nucleotide and/or amino acid sequence listing (diskette)
4. <input type="checkbox"/> priority document(s) identified in Box No VI as item(s):	8. <input checked="" type="checkbox"/> other (specify): <u>Earlier Search</u>

Figure No. _____ of the drawings (if any) should accompany the abstract when it is published.

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request)

INA RESEARCH S.A.

de BRUYN, Johan

BRUYLANTS, Philippe

For receiving Office use only

1. Date of actual receipt of the purported international application:		
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority specified by the applicant: ISA/	2. Drawings:	
	<input type="checkbox"/> received	
	<input type="checkbox"/> not received:	
	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid	

For International Bureau use only

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Form PCT/RO/101 (last sheet) (January 1994; reprint January 1996)

See Notes to the request form

ADDITIONAL SHEET

Representative's reference	:	F - 755 WO
Title of invention :	Polypropylene with high melt strength and drawability	
Additional employees A.133(3) 1 or representatives	:	
LEYDER Francis FINA Research S.A. Zone Industrielle C B - 7181 Seneffe (Feluy) BELGIUM	DETRAIT Jean-Claude c/o FINA Research S.A. Zone Industrielle C B - 7181 Seneffe (Feluy) BELGIUM	ROUFOSSÉ Micheline FINA RESEARCH S.A. Zone Industrielle C B - 7181 Seneffe (Feluy) BELGIUM
Phone :+ 32 64.51 40 92 Telefax :+ 32 64.51 46 57	Phone : + 32 64.51 40 96 Telefax :+ 32 64.51 46 57	Phone : + 32 64.51 43 62 Telefax :+ 32 64.51 46 57
GA 23919	GA 23918	GA 23919

At all instances, oral proceedings pursuant to Art. 116 (EPC) are requested unless one of the Applicant's requests can be granted.

The EPO is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated on the fee sheet to the deposit account 28020026

Fina Research S.A.



de Bruyn Johan



Bruylants Philippe

VOLLMACHT¹ / AUTHORISATION¹ / POUVOIR¹

Bitte vor dem Ausfüllen des Formblatts Rückseite beachten
Please read the notes overleaf before completing the form
Veuillez lire les remarques au verso avant de remplir le formulaire

Nr. der Anmeldung (des Patents)/Application/Patent No./
N° de la demande (du brevet)

PCT/EP

Zeichen des Vertreters (der vertreter) (max. 15 Positionen)
Representative's Reference (max. 15 spaces)
Référence du (des) mandataire(s) (15 caractères ou espaces au maximum)

F- 755 WO

Ich (Wir) / I (We) / Je (Nous)²

DUPIRE, Marc
Rue Maurice Flament (H.), 4
B-7022 Mons
Belgium

MICHEL, Jacques
Chaussée de Marche, 2/C
B-7181 Seneffe
Belgium

bevollmächtige(n) hiermit / do hereby authorise / autorise (autorisons) par le présente³

FINA RESEARCH S.A.,
Zone Industrielle C
B-7180 Seneffe (Feluy)
Belgium

représenté soit conjointement par MM. de Bruyn et Bruylangs, soit par M. Leyder (PG 23919) ou Mr Detrait (PG 23918) ou Mme Roufosse (PG 23919)

(Weitere Vertreter sind auf einem gesonderten Blatt angegeben. / Additional representatives indicated on supplementary sheet. / Les autres mandataires sont mentionnés sur une feuille supplémentaire.)

mich (uns) zu vertreten als / to represent me (us) as / à me (nous) représenter en tant que

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 Einsprechenden (Einsprechende) / opponent(s) / opposant(s),

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à agir en mon (notre) nom dans toute procédure instituée par la Convention sur le brevet européen et concernant la (les) demande(s) de brevet ou le (les) brevet(s) européen(s)⁴ suivant(s) et à recevoir des paiements en mon (notre) nom:

POLYPROPYLENE WITH HIGH MELT STRENGTH AND DRAWABILITY.

ainsi qu'à désigner FINA RESEARCH S.A. comme représentant commun.

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Diese Vollmacht gilt auch für eventuelle europäische Teilanmeldungen. / This authorisation also covers any European divisional applications. / Le présent pouvoir vaut également pour les demandes divisionnaires européennes qui pourraient être déposées.

Untervollmacht kann erteilt werden. / Sub-authorisation may be given. / Le pouvoir pourra être délégué.

Patents Ich (Wir) widerrufe(n) hiermit frühere Vollmachten in Sachen der obenbezeichneten Anmeldung(en) oder des obenbezeichneten (der obenbezeichneten Patente)⁵. / I (We) hereby revoke previous authorisations in respect of the above application(s) or patent(s)⁵. Je révoque (Nous révoquons) par la présente tout pouvoir antérieur, donné pour la (les) demande(s) ou le (les) brevet(s) mentionné(s) ci-dessus⁵.

Ort / Place / Lieu FELUY

Datum / Date 11.06.1999

Unterschrift(en) / Signature(s)⁶ DUPIRE, Marc MICHEL, Jacques

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ALLGEMEINE VOLLMACHT GENERAL AUTHORISATION POUVOIR GENERAL

If requested to be returned by the EPO to the AUTHORISOR
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Nr. der allgemeinen Vollmacht / General Authorisation No
N° du pouvoir général

23919 (add.)

2 Ich (Wir) / I (We) / Je (Nous)

FINA RESEARCH S.A.
Zone Industrielle C
B-7181 Seneffe (Feluy)
BELGIQUE

3 bevollmächtigte(n) hiermit / do hereby authorise / autorise (autorisons) par la présente

ROUFOsse Micheline (*Employée*)
c/o FINA RESEARCH S.A., Dept. Brevets
Zone Industrielle C
B-7181 Seneffe (Feluy)
Belgique

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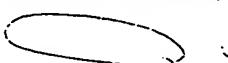
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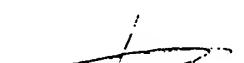
Ort / Place / Lieu Seneffe (Feluy)

Datum / Date February 13, 1997

Unterschrift(en) / Signature(s)



F. LEYDER
Porte de pouvoir


J.C. DETRAET
Directeur Administratif

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ALLGEMEINE VOLLMACHT
GENERAL AUTHORISATION
POUVOIR GÉNÉRAL

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demandé à renvoyer par l'OEB au MANDANT
Wiederzugeben an den Mandanten
Le pouvoir général doit être renvoyé au mandant

23918

Die Verhandlungen über alle Brevetangelegenheiten zu
vertragen und die Zahlungen für mich (uns) in Empfang zu nehmen.
L'OEuvre de négociation sur tous les affaires de brevets
et l'obtention des paiements pour moi (nous) en ma/maison.

2 FINA RESEARCH S.A. (Mitte)

FINA RESEARCH S.A.
XXXXXX XXXXX XXXX
Zone Industrielle C
B-6520 Seneffe
Belgium

12

3

bevollmächtigte(n) hiermit/do hereby authorise/ autorise (autorisons) par la présente

DETRAIT Jean-Claude
c/o FINA RESEARCH S.A., Dept. Brevets
Zone Industrielle C
B-6520 Seneffe

4

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to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions and to receive payments on my (our) behalf.

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Ort / Place / Lieu Seneffe

Unterschrift(en) / Signature(s)

Datum / Date 4 décembre 1989

R. PIRE
Secrétaire Général

W. BRACKE
Administrateur Délégué

7

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1 ALLGEMEINE MACHTELLAUFTRÄG
GENERAL AUTHORISATION
POUVOIR GÉNÉRAL

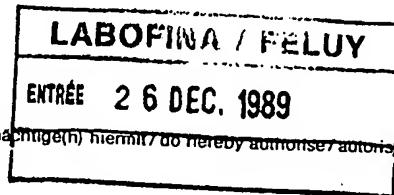
DAFEN A WILDE A WILDE, Kopie dem Bevollmächtigten
des EPTC, der EPTC, copy to the authorised
LOEB und Co. und eine Kopie an mandatario

Sur demande, à renvoyer par l'OEB au MANDANT
du décret émargé en 10/11/1947 à l'ordre du portefeuille
du pouvoir général

23919

2 Ich kann (wir) ja (nous)

FINA RESEARCH S.A.
Zone Industrielle C
B-6520 Seneffe
Belgium



3 bevollmächtigte(n) hiermit / do hereby authorise / autorise (autorisons) par la présente

LEYDER Francis
C/o FINA RESEARCH S.A., Dpt. Brevets
Zone Industrielle C
B-6520 Behaafte

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to represent me (us) In all proceedings established by the European Patent Convention to
take all actions on my (our) behalf and to receive payments for me (us).

payments on my (our) behalf. à me (nous) représenter pour ce qui concerne toutes mes (nos) affaires de brevet dans toute procédure instituée par la Convention sur le brevet européen et, à ce titre, à agir en mon (notre) nom et à recevoir des paiements pour mon (notre) compte.

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Please return the yellow copy, supplemented by the General Authorisation No., to the authorisor.
Préparez de renvoyer la copie jaune au mandant, munie du n° du pouvoir général.

Ort / Place / Lieu **Seneffe**

Datum / Date 4 décembre 1989

Unterschrift(en) / Signature(s)

R. PIRE W. BRACKE
Secrétaire Général Administrateur Général

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10/009625/4

PATENT COOPERATION TREATY

PCT

REC'D 24 OCT 2001

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference F-755 WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/05397	International filing date (day/month/year) 08/06/2000	Priority date (day/month/year) 10/06/1999
International Patent Classification (IPC) or national classification and IPC C08L23/10		
<p>Applicant ATOFINA RESEARCH</p> <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 3 sheets.</p> <p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input checked="" type="checkbox"/> Certain observations on the international application 		

Date of submission of the demand 15/12/2000	Date of completion of this report 19.10.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer Schmidt, H Telephone No. +31 70 340 2461



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/05397

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):
Description, pages:

1-14 as originally filed

Claims, No.:

1-20 as received on 28/06/2001 with letter of 28/06/2001

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.: 21-33
- the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP00/05397

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 4,12,16
	No: Claims 1-3,5-11,13-15,17-20
Inventive step (IS)	Yes: Claims
	No: Claims 1-20
Industrial applicability (IA)	Yes: Claims 1-20
	No: Claims

2. Citations and explanations
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/05397

Box I

1. Basis of the report:

The present report is based on the amended claims filed with letter of 28.6.2001. The amendments filed with the International Bureau are in conformity with Article 34(2)b PCT and allowable

Box V

2. Claims 1-3, 5-11, 13-15 and 17-20 are not novel acc. Art. 33(2) PCT

Subject matter of present claim 1 is the use of multimodal polypropylene of 50-70% of a high molecular weight fraction and 50-30% of a low molecular weight fraction and a dispersion index of 8 or higher, $M_z/M_n=50-150$ for improving the balance between melt strength and drawability when melt processed. Subject matter of claim 9 is the corresponding composition and of claim 13 a correponding method of melt processing

D1 (EP-A-942013) is a family member and english translation of WO-A-99/7752, which was published on 18.2.1999 and therefore constitutes state of the art acc. Art. 33(2) and (3) PCT.

D1 describes high melt tension polypropylene blends for melt processing. The parameters shown are within the ranges of present application. Particularly, example X-9 in table 9 of D1 describes a polypropylene composition of $M_w/M_n=19.0$ and $M_z/M_w=4.8$. The ratio of M_z/M_n is then $19.0 \times 4.8 = 91.2$. The content of the higher molecular weight part is 42%, but page 9, lines 24-26 disclose a content of the higher molecular weight portion of 20-50%. The compositions are used for stretched or inflated films and have the advantage of high melt tension without breaking under stretching when producing films under high speed (page 18, lines 11-43, see also the values of melt tension and critical shearing rate in the examples). The series of examples 3 on page 47 ff. show, that no draw-down occurs upon vacuum forming. Somebody skilled in the art will regard this as an improvement of melt strength and drawability as desired in the use and method of present application. Claims 1, 9 and 13 hence are not new in the sense of Art.33(2) PCT

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/05397

2.2 The subject matter of claims 2, 8, 10, 14 and 20 is already disclosed in D1.

The subject matter of claims 5-7 and 17-19 is also disclosed in D1, example series 4., where the blends are extruded with peroxides and cross-linking aids as claimed in the above claims.

The peroxide claimed in claims 6 and 18 is mentioned on page 19, line 25

2.3 The subject matter of claims 3, 11 and 15 (55-65% content of high molecular weight fraction) and 4, 12 and 16 (ratio of melt indices) are not disclosed in D1. However, since the weight percentage ranges of the higher and lower melt fractions are dependant on the definition of these fractions, which is unclear, these claims apparently lack novelty (see VIII).

3. Claims 4, 12 and 16 are still not inventive acc. Art. 33(3) PCT

3.1 Closest prior art is D1. Difference of D1 to the present claims is a content of 55-65% and 45-35% of the first and second fraction (claims 3, 11 and 15) and a ratio of at least 5 of the melt indices of these fractions (claims 4, 12 and 16). The applicants' comparative examples do not disclose compositions of bimodal polypropylene blends having weight percentage ranges or melt index ratios outside these claimed ranges. The choice of such ranges hence is one out of a number of equally likely alternatives. As long as advantageous technical effects of such a choice of ranges are not proven, the selection made is regarded as arbitrary and hence non-inventive. The applicant is asked to provide comparative examples of bimodal polypropylene blends with a melt index ratio of lower than 5 or high molecular weight part outside the range of 55-65% showing that the blends claimed in present application have an enhanced compromise of melt strength and drawability.

Box VIII

4. Claims 1, 3, 9, 11, 13 and 15 are not clear according Art. 6 PCT

4.1 The term "enhancing a compromise" in claim 1 is unclear and should be replaced by another formulation. It is particularly ambiguous how a compromise, i.e. balance

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/05397

between melt strength and drawability can be enhanced, i.e. made bigger. Even if the explanation given in the description of the application bridging pages 1 and 2 would be clear, this is not sufficient for the clarity of the claims, which have to be clear in themselves

4.2 The terms "high molecular weight" and "low molecular weight" fraction in claims 1, 9 and 13 are ambiguous and do not sufficiently define the molecular weight ranges of the high molecular weight fraction and the low molecular weight fraction. Since polymers have a range of molecular weights, the ranges of the two fractions can overlap and it is not clear, whether the overlapping parts belong to the first or second fraction, thus rendering the weight percentages of the fractions defined in claims 1, 3, 9, 11, 13 and 15 unclear as well.